

**City of Haverhill Retirement System**

*Actuarial Valuation and Review  
as of January 1, 2004*

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*November 8, 2004*

*Retirement Board  
City of Haverhill Retirement System  
4 Summer Street, Room 303  
Haverhill, MA 01803*

*Dear Board Members:*

*We are pleased to submit this Actuarial Valuation and Review as of January 1, 2004. It summarizes the actuarial data used in the valuation, establishes the funding requirements for fiscal 2005 and later years and analyzes the preceding two years' experience.*

*The census information and financial information on which our calculations were based was prepared by staff of the the City of Haverhill Retirement System. That assistance is gratefully acknowledged. The actuarial calculations were completed under my supervision.*

*This actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the Plan.*

*We look forward to reviewing this report at your next meeting and to answering any questions.*

*Sincerely,*

*THE SEGAL COMPANY*

*By:*

\_\_\_\_\_  
*Kathleen A. Riley, FSA, MAAA, EA  
Senior Vice President and Actuary*

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## SECTION 1: Valuation Summary for the City of Haverhill Retirement System

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### Purpose

This report has been prepared by The Segal Company to present a valuation of the City of Haverhill Retirement System as of January 1, 2004. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The contribution requirements presented in this report are based on:

- The benefit provisions of M.G.L. Chapter 32;
- The characteristics of covered active participants, inactive participants, and retired participants and beneficiaries as of January 1, 2004;
- The assets of the Plan as of December 31, 2003;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

### Significant Issues in Valuation Year

The following key findings were the result of this actuarial valuation:

- The actuarial valuation report as of January 1, 2004 is based on financial information as of that date. Changes in the value of assets subsequent to that date, to the extent that they exist, are not reflected.
- During the plan years ended 2002 and 2003, the market value of return was (8.70)% and 24.70%, respectively. Because the actuarial value of assets gradually recognizes market value fluctuations over a five-year period, the actuarial rates of return for the plan years ended 2002 and 2003 were (2.42)% and 7.45%, respectively. The actuarial value of assets as of December 31, 2003 was \$150.0 million, or 104.2% of the market value of assets.
- As indicated in Section 2, Subsection B of this report, the total unrecognized investment loss as of December 31, 2003 is \$6.1 million. This investment loss will be recognized in the determination of the actuarial value of assets for funding purposes in the next few years, to the extent it is not offset by recognition of investment gains derived from future experience. This implies that earning the assumed rate of investment return of 8.50% per year (net of expenses) on a **market value** basis will result in investment losses on the actuarial value of assets in the next few years. Therefore, if the actual market return is equal to the assumed 8.50% rate and all other actuarial assumptions are met, the contribution requirements would still increase in each of the next few years.

## SECTION 1: Valuation Summary for the City of Haverhill Retirement System

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- The unfunded liability has increased from \$61.5 million as of January 1, 2002 to \$92.2 million as of January 1, 2004. The unfunded liability was expected to increase to \$65.7 million. The additional increase is primarily due to an investment loss of \$20.1 million and the additional liability of \$8.0 million associated with the 2002 and 2003 ERIs.
- The preliminary contribution for fiscal 2005 of \$8,287,700 amortizes the unfunded liability over a 24-year period in increasing (4.50% per year) payments. The first payment on the 2003 ERI is in fiscal 2006. The fiscal 2005 appropriation has been set to the previously budgeted amount of \$7,443,414. Therefore, the impact of this valuation will first be reflected in the fiscal 2006 appropriation. Because the fiscal 2006 appropriation would have increased 23.4% over fiscal 2005, the Board has elected to phase in the impact over a two-year period. The funding schedule shown in Exhibit G of Section 3 has a fiscal 2006 appropriation of \$8,373,841 (12.5% higher than fiscal 2005) and a fiscal 2007 appropriation of \$9,410,735 (12.4% higher than fiscal 2006).

## SECTION 1: Valuation Summary for the City of Haverhill Retirement System

### Summary of Key Valuation Results

	2004	2002
<b>Contributions for fiscal year beginning July 1:</b>		
Recommended for 2004 and 2002	\$7,443,414	\$6,314,000
Recommended for 2005 and 2003	8,373,841	6,772,600
Recommended for 2006 and 2004	9,410,735	7,443,414
<b>Funding elements for plan year beginning January 1:</b>		
Normal cost, including administrative expenses	\$4,891,257	\$5,679,011
Market value of assets	143,915,478	144,518,856
Actuarial value of assets	149,981,686	160,890,365
Actuarial accrued liability	242,187,917	222,348,347
Unfunded actuarial accrued liability	92,206,231	61,457,982
<b>GASB 25/27:</b>		
Annual required contributions	\$7,443,414	\$6,197,453
Actual contributions	--	--
Percentage contributed	--	100.00%
Funded ratio	61.93%	72.36%
<b>Demographic data for plan year beginning January 1:</b>		
Number of retired participants and beneficiaries	1,204	1,103
Number of inactive participants	464	504
Number of active participants	936	1,120
Total payroll	\$30,361,078	\$35,435,172
Average payroll	32,437	31,639

## SECTION 2: Valuation Results for the City of Haverhill Retirement System

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### A. PARTICIPANT DATA

The Actuarial Valuation and Review considers the number and demographic characteristics of covered participants, including active participants, inactive participants, retired participants and beneficiaries.

This section presents a summary of significant statistical data on these participant groups.

More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibits A and B.

*A historical perspective of how the participant population has changed over the past seven valuations can be seen in this chart.*

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#### CHART 1

##### Participant Population: 1991 – 2003

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Year Ended December 31	Active Participants	Inactive Participants	Retired Participants and Beneficiaries
1991	1,469	502	902
1993	1,460	186	892
1995	1,510	181	922
1997	1,548	189	954
1999	1,630	271	955
2001	1,120	504	1,103
2003	936	464	1,204

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## SECTION 2: Valuation Results for the City of Haverhill Retirement System

### Active Participants

Plan costs are affected by the age, years of service and payroll of active participants. In this year's valuation, there were 936 active participants with an average age of 45.2, average years of service of 9.9 years and average payroll of \$32,437. The 1,120 active participants in the prior valuation had an average age of 45.7, average service of 10.4 years and average payroll of \$31,639.

Among the active participants, there were 4 participants (0.4%) with unknown age information. The actuarial calculations were adjusted for the missing information by assuming that it was the same as information provided for other active participants with similar known characteristics.

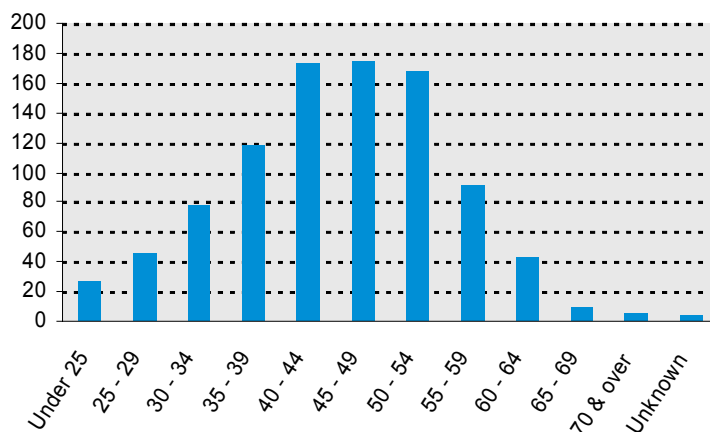
### Inactive Participants

In this year's valuation, there were 464 participants with a vested right to a deferred or immediate vested benefit or entitled to a return of their employee contributions.

*These graphs show a distribution of active participants by age and by years of service.*

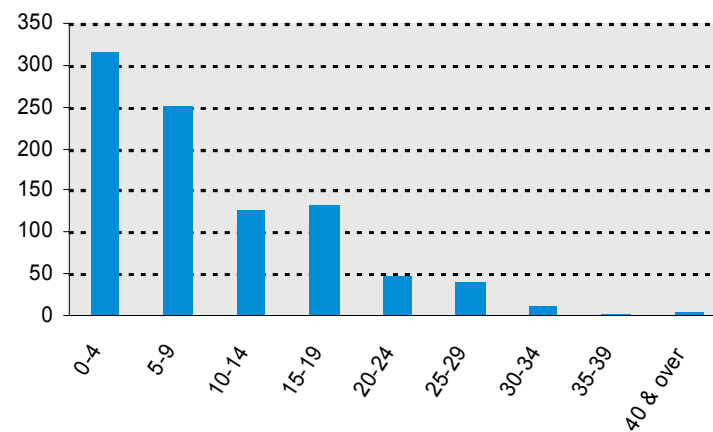
**CHART 2**

**Distribution of Active Participants by Age as of December 31, 2003**



**CHART 3**

**Distribution of Active Participants by Years of Service as of December 31, 2003**





## SECTION 2: Valuation Results for the City of Haverhill Retirement System

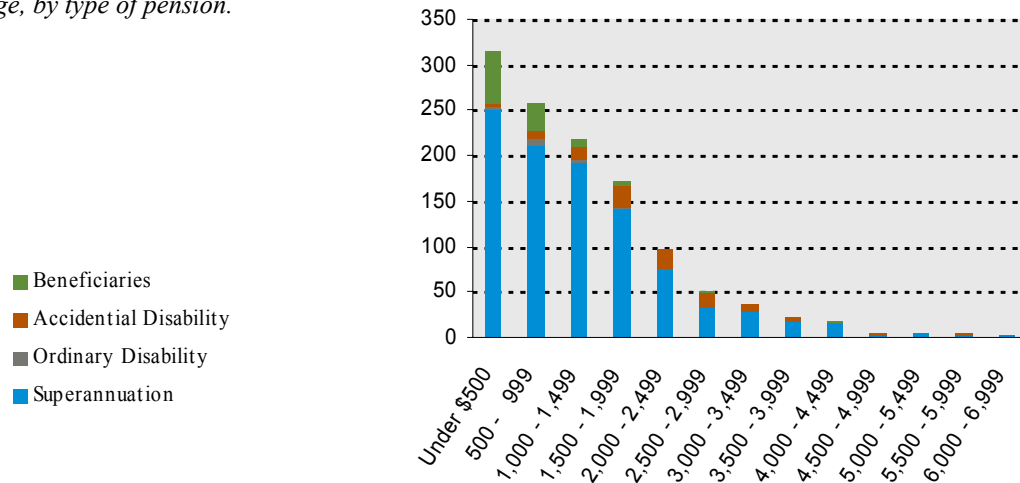
### Retired Participants and Beneficiaries

As of December 31, 2003, 1,099 retired participants and 105 beneficiaries were receiving total monthly benefits of \$1,539,409, excluding COLAs reimbursed by the Commonwealth. For comparison, in the previous valuation, there were 994 retired participants and 109 beneficiaries receiving monthly benefits of \$1,149,243.

*These graphs show a distribution of the current retired participants and beneficiaries based on their monthly amount and age, by type of pension.*

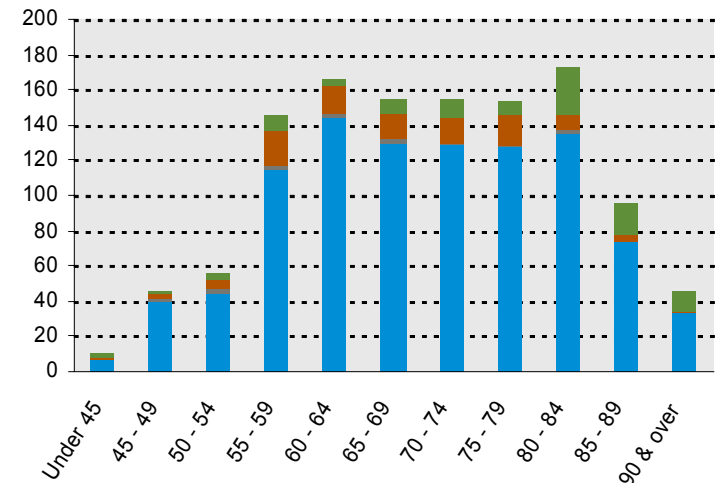
**CHART 4**

**Distribution of Retired Participants and Beneficiaries by Type and by Monthly Amount as of December 31, 2003**



**CHART 5**

**Distribution of Retired Participants and Beneficiaries by Type and by Age as of December 31, 2003**



## SECTION 2: Valuation Results for the City of Haverhill Retirement System

### B. FINANCIAL INFORMATION

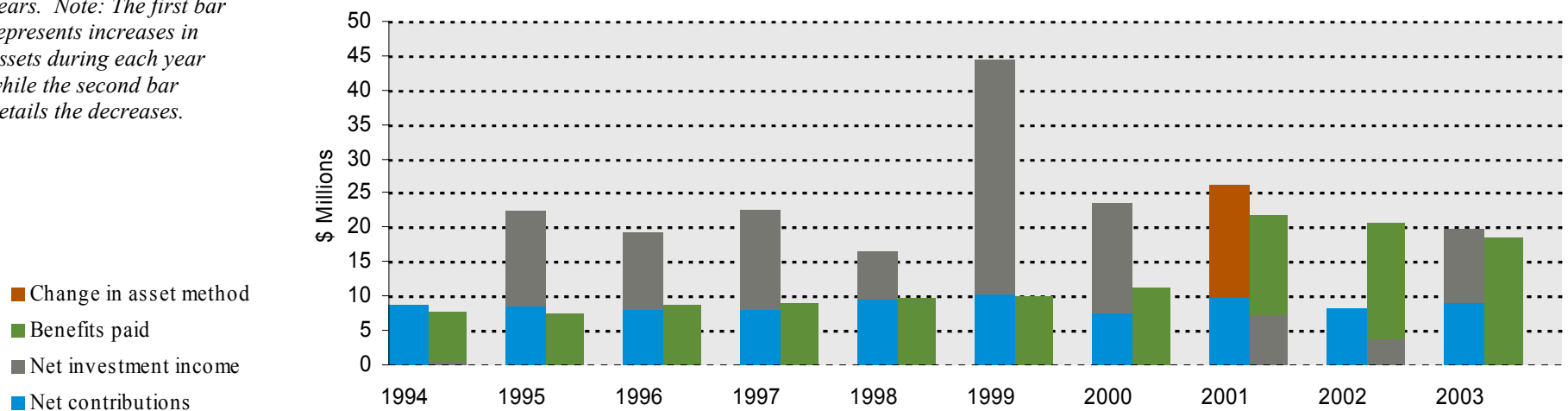
Retirement plan funding anticipates that, over the long term, both net contributions (less administrative expenses) and net investment earnings (less investment fees) will be needed to cover benefit payments.

Retirement plan assets change as a result of the net impact of these income and expense components. Additional financial information, including a summary of these transactions for the valuation year, is presented in Section 3, Exhibits C and D.

*The chart depicts the components of changes in the actuarial value of assets over the last ten years. Note: The first bar represents increases in assets during each year while the second bar details the decreases.*

**CHART 6**

**Comparison of Increases and Decreases in the Actuarial Value of Assets for Years Ended December 31, 1994 – 2003**



## SECTION 2: Valuation Results for the City of Haverhill Retirement System

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable.

The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

*The chart shows the determination of the actuarial value of assets as of the valuation date.*

### CHART 7

#### Determination of Actuarial Value of Assets

	Year Ended December 31,	
	2003	2002
1. Actuarial value of assets	\$148,677,745	\$160,890,365
2. Contributions, less benefit payments and expenses during the year	-9,416,898	-8,415,303
3. Average actuarial value: (1) + [50% of (2)]	143,969,296	156,682,713
4. Expected investment income: .085 x (3)	12,237,390	13,318,031
5. Preliminary actuarial value of assets at the end of the year: (1) + (2) + (4)	151,498,238	165,793,092
6. Market value of assets at the end of the year	143,915,478	123,898,121
7. Adjustment toward market value: 20% of [(6) - (5)]	-1,516,552	-8,378,994
8. Adjustment to be within 20% corridor	0	-8,736,353
9. Final actuarial value of assets: (5) + (7) + (8)	<u>\$149,981,686</u>	<u>\$148,677,745</u>
10. Actuarial value as a percentage of market value: (9) ÷ (6)	104.2%	120.0%

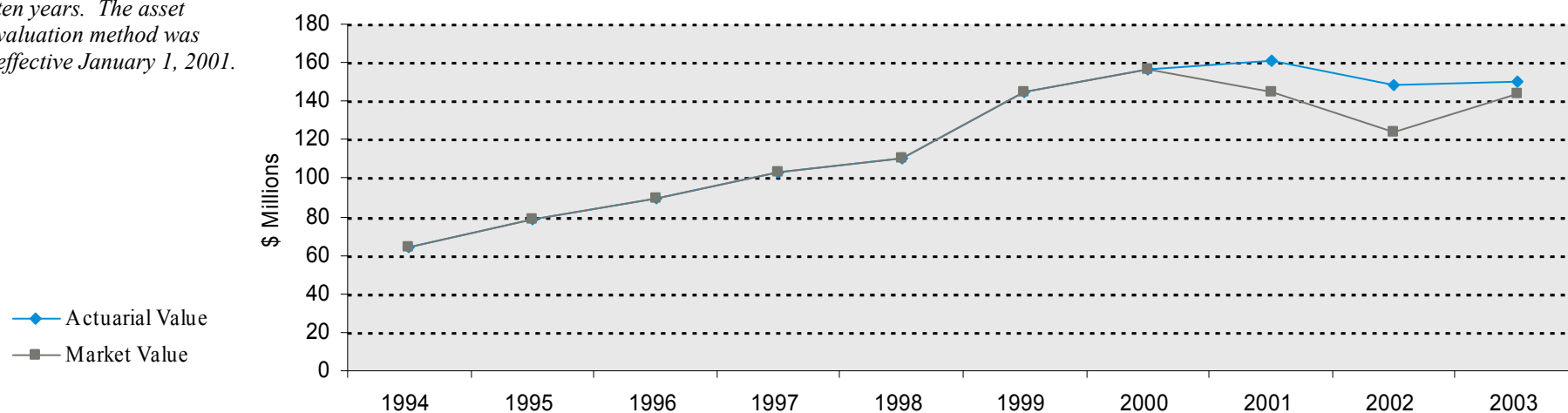
## SECTION 2: Valuation Results for the City of Haverhill Retirement System

Both the actuarial value and market value of assets are representations of the City of Haverhill Retirement System's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets. The actuarial asset value is significant because the City of Haverhill Retirement System's liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

*This chart shows the change in the actuarial value of assets versus the market value over the past ten years. The asset valuation method was effective January 1, 2001.*

**CHART 8**

**Actuarial Value of Assets vs. Market Value of Assets as of December 31, 1994 – 2003**



## SECTION 2: Valuation Results for the City of Haverhill Retirement System

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### C. ACTUARIAL EXPERIENCE

To calculate the required contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), the contribution requirement will decrease from the previous year. On the other hand, the contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term

development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

The total loss over the past two years is \$26,545,685. A discussion of the major components of the actuarial experience is on the following pages.

*This chart provides a summary of the actuarial experience over the past two years.*

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### CHART 9

#### Actuarial Experience for Two-Year Period Ended December 31, 2003

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1. Net loss from investments*	-\$20,086,703
2. Net gain from administrative expenses	167,169
3. Net loss from other experience**	<u>-6,626,151</u>
4. Net experience gain/(loss): (1) + (2) + (3)	-\$26,545,685

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\* Details in Chart 10

\*\* Details in Chart 13

## SECTION 2: Valuation Results for the City of Haverhill Retirement System

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### Investment Rate of Return

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the City of Haverhill Retirement System's investment policy. For valuation purposes, the assumed rate of return on the actuarial value of assets is 8.50%. The actual rate of return on an actuarial basis for the 2003 plan year was 7.45% and (2.42%) for the 2002 year.

Since the actual return for each of the last two years was less than the assumed return, the City of Haverhill Retirement System experienced an actuarial loss during the two-year period ending December 31, 2003 with regard to its investments.

*This chart shows the gain/(loss) due to investment experience.*

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### CHART 10

#### Actuarial Value Investment Experience

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	Year Ended	
	December 31, 2003	December 31, 2002
1. Actual return	\$10,720,838	-\$3,797,316
2. Average value of assets	143,969,296	156,682,713
3. Actual rate of return: (1) ÷ (2)	7.45%	-2.42%
4. Assumed rate of return	8.50%	8.50%
5. Expected return: (2) x (4)	\$12,237,390	\$13,318,031
6. Actuarial gain/(loss): (1) – (5)	<u>-\$1,516,552</u>	<u>-\$17,115,347</u>

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## SECTION 2: Valuation Results for the City of Haverhill Retirement System

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the market value investment return for the last ten years, including five-year and ten-year averages.

Based upon this experience and future expectations, we have maintained the assumed rate of return of 8.50%.

### CHART 11

#### Investment Return – Actuarial Value vs. Market Value: 1994 – 2003

Year Ended December 31	Actuarial Value Investment Return		Market Value Investment Return	
	Amount	Percent	Amount	Percent
1994	\$-447,682	-0.70%	\$-447,682	-0.70%
1995	13,715,320	21.28	13,715,320	21.28
1996	11,230,017	14.34	11,230,017	14.34
1997	14,589,506	16.45	14,589,506	16.45
1998	7,087,016	6.87	7,087,016	6.87
1999	34,130,972	30.96	34,130,972	30.96
2000	16,095,798	11.29	16,095,798	11.29
2001	9,020,851	5.85	-7,350,658	-4.76
2002	-3,797,316	-2.42	-12,205,432	-8.70
2003	<u>10,720,838</u>	7.45	<u>29,434,255</u>	24.70
Total	\$112,345,320		\$106,279,113	
Five-year average return		9.35%		9.02%
Ten-year average return		10.16%		9.98%

*Note: Each year's yield is weighted by the average asset value in that year.*

## SECTION 2: Valuation Results for the City of Haverhill Retirement System

Subsection B described the actuarial asset valuation method that gradually takes into account fluctuations in the market value rate of return. The effect of this is to stabilize the actuarial rate of return, which contributes to leveling pension plan costs.

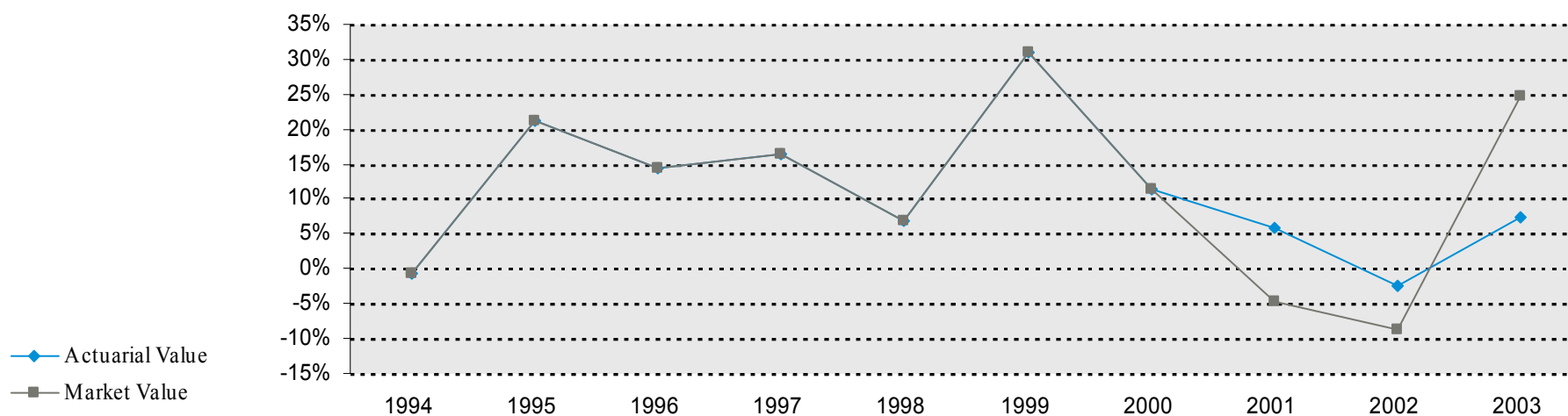
### Administrative Expenses

Administrative expenses for the years ended December 31, 2003 and 2002 were \$304,960 and \$493,116, respectively, compared to the assumption of \$450,000 in 2002 and \$470,250 in 2003. This resulted in a gain of \$167,169 for the two year period, including an adjustment for interest. The administrative expense assumption for 2004 is \$400,000.

*This chart illustrates how this leveling effect has actually worked over the years 1994 - 2003 .*

**CHART 12**

**Market and Actuarial Rates of Return for Years Ended December 31, 1994 - 2003**





## SECTION 2: Valuation Results for the City of Haverhill Retirement System

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### Other Experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- the extent of turnover among the participants,
- retirement experience (earlier or later than expected),
- mortality (more or fewer deaths than expected),

- the number of disability retirements, and
- salary increases different than assumed.

The net loss from this other experience for the two-year period ending December 31, 2003 amounted to (\$6,626,151), which is 2.7% of the actuarial accrued liability. Detail is shown in the chart below.

*The chart shows elements of the experience gain/(loss) for the most recent years.*

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### CHART 13

#### Experience Due to Changes in Demographics for Two-Year Period Ended December 31, 2003

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1. Salary increases less than expected	\$3,148,695
2. Net 3(8)c reimbursements	-212,397
3. 2002 ERI	-4,686,723
4. 2003 ERI	-3,281,900
5. Miscellaneous (loss)	<u>-1,593,826</u>
6. Net gain/(loss)	<u>-\$6,626,151</u>

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## SECTION 2: Valuation Results for the City of Haverhill Retirement System

### D. RECOMMENDED CONTRIBUTION

The amount of annual contribution required to fund the Plan is comprised of an employer normal cost payment and a payment on the unfunded actuarial accrued liability.

The preliminary recommended contribution for fiscal 2005 of \$8,287,700 amortizes the unfunded liability over a 24-year period in increasing (4.50% per year) payments. The first payment on the 2003 ERI is in fiscal 2006. The fiscal 2005 appropriation has been set to the previously budgeted

amount of \$7,443,414. Therefore, the impact of this valuation will first be reflected in the fiscal 2006 appropriation.

Exhibit G in Section 3 shows the recommended contribution through fiscal 2028 based on this funding schedule.

*The chart compares this valuation's recommended contribution with the prior valuation.*

### CHART 14

#### Recommended Contribution

	Year Beginning January 1			
	2004		2002	
	Amount	% of Payroll	Amount	% of Payroll
1. Total normal cost	\$4,491,257	14.02%	\$5,229,011	13.99%
2. Administrative expenses	400,000	1.25%	450,000	1.20%
3. Expected employee contributions	<u>-2,731,262</u>	<u>-8.53%</u>	<u>-2,994,174</u>	<u>-8.01%</u>
4. Employer normal cost: (1) + (2) + (3)	\$2,159,995	6.74%	\$2,684,837	7.18%
5. Actuarial accrued liability	242,187,917		222,348,347	
6. Actuarial value of assets	<u>149,981,686</u>		<u>160,890,365</u>	
7. Unfunded actuarial accrued liability: (5) - (6)	\$92,206,231		\$61,457,982	
8. Employer normal cost projected to July 1, 2004 and 2002, adjusted for timing	2,299,989	7.02%	2,858,847	7.48%
9. Projected unfunded actuarial accrued liability	96,045,083		64,016,683	
10. Payment on projected unfunded actuarial accrued liability, adjusted for timing	5,987,711	18.29%	3,566,799	9.33%
11. Preliminary recommended contribution: (8) + (10)	<u>\$8,287,700</u>	<u>25.31%</u>	<u>\$6,425,646</u>	<u>16.81%</u>
12. Budgeted appropriation	<u>\$7,443,414</u>	<u>22.73%</u>	<u>\$6,314,000</u>	<u>16.52%</u>
13. Projected payroll	\$32,743,704		\$38,215,994	

*\*Recommended contributions are assumed to be paid monthly.*

## SECTION 2: Valuation Results for the City of Haverhill Retirement System

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### Reconciliation of Recommended Contribution

The chart below details the changes in the recommended contribution from the prior valuation to the current year's valuation.

*The chart reconciles the contribution from the prior valuation to the amount determined in this valuation.*

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#### CHART 15

#### Reconciliation of Recommended Contribution from July 1, 2002 to July 1, 2004

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<b>Preliminary Recommended Contribution as of July 1, 2002</b>	<b>\$6,425,646</b>
Expected increase	\$702,188
Effect of investment loss	1,987,976
Effect of 2002 ERI	315,580
Effect of amortizing experience gains and losses in increasing payments	-229,209
Effect of net other changes	<u>-914,481</u>
<b>Total change</b>	<b><u>\$1,862,054</u></b>
<b>Preliminary Recommended Contribution as of July 1, 2004</b>	<b>\$8,287,700</b>

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## SECTION 2: Valuation Results for the City of Haverhill Retirement System

### E. INFORMATION REQUIRED BY THE GASB

Governmental Accounting Standards Board (GASB) reporting information provides standardized information for comparative purposes of governmental pension plans. This information allows a reader of the financial statements to compare the funding status of one governmental plan to another on relatively equal terms.

Critical information to GASB is the historical comparison of the GASB required contribution to the actual contributions. This comparison demonstrates whether a plan is being funded on an actuarially sound basis and in accordance with the GASB funding requirements. Chart 16 below presents a graphical representation of this information for the Plan.

The other critical piece of information regarding the Plan's financial status is the funded ratio. This ratio compares the

actuarial value of assets to the actuarial accrued liabilities of the plan as calculated under GASB. High ratios indicate a well-funded plan with assets sufficient to pay most benefits. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other changes.

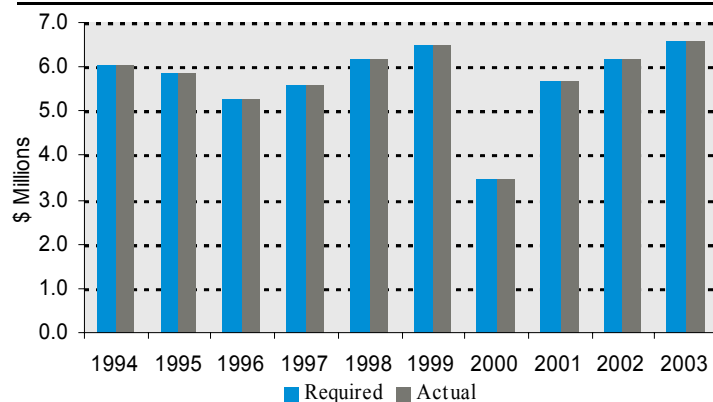
Although GASB requires that the actuarial value of assets be used to determine the funded ratio, Chart 17 shows the funded ratio calculated using both the actuarial value of assets and the market value of assets.

The details regarding the calculations of these values and other GASB numbers may be found in Section 4, Exhibits II, III, and IV.

*These graphs show key GASB factors.*

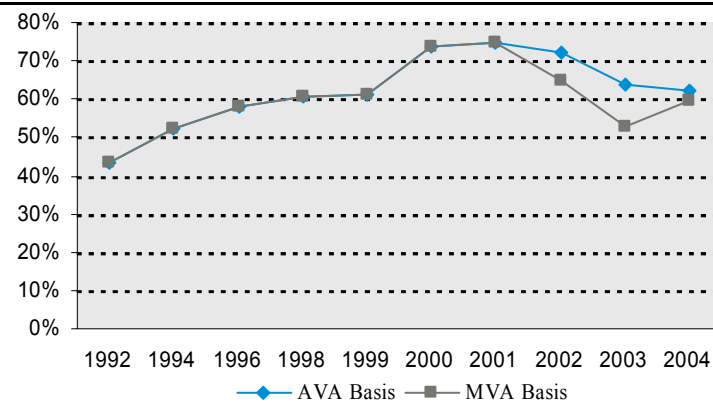
**CHART 16**

**Required Versus Actual Contributions**



**CHART 17**

**Funded Ratio**



**SECTION 3: Supplemental Information for the City of Haverhill Retirement System****EXHIBIT A****Table of Plan Coverage**

Category	Year Ended December 31		Change From Prior Year
	2003	2001	
Active participants in valuation:			
Number	936	1,120	-16.4%
Average age	45.2	45.7	N/A
Average service	9.9	10.4	N/A
Total payroll	\$30,361,078	\$35,435,172	-14.3%
Average payroll	32,437	31,639	2.5%
Account balances	23,573,078	26,604,072	-11.4%
Number with unknown age information	4	5	-20.0%
Inactive employees with vested rights to a return of their contributions or a deferred or immediate benefit			
	464	504	-7.9%
Retired participants:			
Number in pay status	981	875	12.1%
Average age	69.9	70.6	N/A
Average monthly benefit	\$1,273	\$1,027	24.0%
Disabled participants:			
Number in pay status	118	119	-0.8%
Average age	66.8	66.4	N/A
Average monthly benefit	\$1,878	\$1,554	20.8%
Beneficiaries in pay status	105	109	-3.7%

### SECTION 3: Supplemental Information for the City of Haverhill Retirement System

#### EXHIBIT B

#### Participants in Active Service as of December 31, 2003 By Age, Years of Service, and Average Payroll

Age	Years of Service									
	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	27	26	1	--	--	--	--	--	--	--
	\$15,734	\$15,662	\$17,604	--	--	--	--	--	--	--
25 - 29	45	36	9	--	--	--	--	--	--	--
	\$24,460	\$22,842	\$30,935	--	--	--	--	--	--	--
30 - 34	78	36	29	11	2	--	--	--	--	--
	\$38,701	\$29,462	\$47,574	\$45,805	\$37,288	--	--	--	--	--
35 - 39	118	37	52	16	13	--	--	--	--	--
	\$34,968	\$22,575	\$40,841	\$38,276	\$42,679	--	--	--	--	--
40 - 44	173	68	42	24	30	9	--	--	--	--
	\$31,958	\$19,914	\$29,944	\$33,854	\$54,052	\$53,664	--	--	--	--
45 - 49	175	44	45	30	29	17	10	--	--	--
	\$34,588	\$27,921	\$27,961	\$31,478	\$42,467	\$52,579	\$49,651	--	--	--
50 - 54	168	28	39	26	37	13	20	5	--	--
	\$34,190	\$20,598	\$27,008	\$33,834	\$36,040	\$47,950	\$53,415	\$41,800	--	--
55 - 59	91	24	17	14	15	8	9	4	--	--
	\$29,156	\$20,444	\$20,793	\$28,779	\$32,519	\$40,817	\$43,698	\$49,645	--	--
60 - 64	43	9	12	5	4	2	1	3	3	4
	\$34,901	\$16,804	\$26,107	\$19,226	\$34,206	\$57,218	\$69,484	\$63,594	\$64,454	\$58,800
65 - 69	9	5	3	--	1	--	--	--	--	--
	\$18,485	\$12,959	\$17,643	--	\$48,635	--	--	--	--	--
70 & over	5	--	3	--	1	--	--	--	--	1
	\$5,060	--	\$6,729	--	\$2,113	--	--	--	--	\$3,000
Unknown	4	4	--	--	--	--	--	--	--	--
	\$4,829	\$4,829	--	--	--	--	--	--	--	--
Total	936	317	252	126	132	49	40	12	3	5
	\$32,437	\$22,116	\$32,176	\$33,745	\$41,601	\$49,819	\$50,690	\$49,863	\$64,454	\$47,640

**SECTION 3: Supplemental Information for the City of Haverhill Retirement System**

**EXHIBIT C**

**Summary Statement of Income and Expenses on an Actuarial Value Basis**

	<b>Year Ended December 31, 2003</b>	<b>Year Ended December 31, 2002</b>
<b>Contribution income:</b>		
Employer contributions	\$6,543,344	\$6,158,663
Employee contributions	2,853,188	2,635,758
Other contributions	41,296	38,790
Less administrative expenses	<u>-304,960</u>	<u>-493,116</u>
Net contribution income	\$9,132,868	\$8,340,095
<b>Investment income:</b>		
Interest, dividends and other income	\$30,565,677	-\$11,007,818
Adjustment toward market value	-18,713,417	8,408,116
Less investment fees	<u>-1,131,422</u>	<u>-1,197,614</u>
Net investment income	<u>10,720,838</u>	<u>-3,797,316</u>
<b>Total income available for benefits</b>	<b>\$19,853,706</b>	<b>\$4,542,778</b>
<b>Less benefit payments:</b>		
Pensions and annuities	-\$17,533,727	-\$15,630,625
Net 3(8)c reimbursements	-153,542	-58,855
Refunds to members	<u>-862,496</u>	<u>-1,065,918</u>
Net benefit payments	-\$18,549,766	-\$16,755,398
<b>Change in reserve for future benefits</b>	<b>\$1,303,941</b>	<b>-\$12,212,620</b>

**SECTION 3: Supplemental Information for the City of Haverhill Retirement System****EXHIBIT D****Development of the Fund Through December 31, 2003**

<b>Year Ended December 31</b>	<b>Employer Contributions</b>	<b>Employee Contributions</b>	<b>Other Contributions</b>	<b>Net Investment Return</b>	<b>Administrative Expenses</b>	<b>Benefit Payments</b>	<b>Actuarial Value of Assets at End of Year</b>
1994	\$8,688,536	\$0	\$0	-\$447,682	\$0	\$7,243,117	\$63,878,737
1995	8,626,284	0	0	13,715,320	0	7,500,687	78,719,655
1996	8,099,749	0	0	11,230,017	0	8,864,987	89,184,434
1997	5,590,755	3,510,794	26,885	15,055,717	1,008,582	9,141,668	103,218,335
1998	6,158,781	3,714,101	23,469	7,087,016	325,232	9,724,656	110,151,814
1999	6,480,535	3,984,419	25,593	34,130,972	256,809	10,031,711	144,484,814
2000	3,425,692	4,248,608	71,493	16,095,798	320,799	11,316,805	156,688,801
2001	5,688,580	4,456,641	7,034	9,020,851	433,729	14,537,813	160,890,365
2002	6,158,663	2,635,758	38,790	-3,797,316	493,116	16,755,398	148,677,745
2003	6,543,344	2,853,188	41,296	10,720,838	304,960	18,549,766	149,981,686

*Notes: Investment return net of investment expenses.*

*Employer contributions prior to 1997 include all contributions net of administrative expenses.*



**SECTION 3: Supplemental Information for the City of Haverhill Retirement System****EXHIBIT E****Development of Unfunded Actuarial Accrued Liability**

	Year Ended	
	December 31, 2003	December 31, 2002
1. Unfunded actuarial accrued liability at beginning of year	\$63,642,670	\$61,457,982
2. Normal cost at beginning of year	5,934,506	5,679,011
3. Total contributions	-9,437,828	-8,833,211
4. Interest		
(a) For whole year on (1) + (2)	\$5,914,066	\$5,706,644
(b) For half year on (3)	<u>-392,928</u>	<u>-367,756</u>
(c) Total interest	<u>5,521,138</u>	<u>5,338,888</u>
5. Expected unfunded actuarial accrued liability	\$65,660,546	\$63,642,670
6. Change due to:		
(a) 2002 ERI	\$4,686,723	--
(b) 2003 ERI	<u>3,281,900</u>	--
(c) Total changes	7,968,623	--
7. Actual unfunded actuarial accrued liability	92,206,231	--
8. (Gain)/Loss for a two-year period, excluding ERIs: (7) - (6) - (5)	18,577,062	--

**SECTION 3: Supplemental Information for the City of Haverhill Retirement System**

**EXHIBIT F**

**Table of Amortization Bases as of July 1, 2004**

Type	Annual Payment	Years Remaining	Outstanding Balance
Prior experience gains and losses	-\$763,012	24	-\$11,803,365
2002 ERI	315,580	24	4,881,847
2003 ERI	--	24	3,418,536
2003 experience loss	1,250,885	24	19,350,487
Remaining liability	<u>5,184,258</u>	24	<u>80,197,578</u>
Total	\$5,987,711		\$96,045,083

*Notes: Payments include adjustment for timing.*

*Does not reflect adjustment to set fiscal 2005 appropriation to budgeted amount.*

*Refer to Exhibit G for information on payments in fiscal year 2006 and later.*

### SECTION 3: Supplemental Information for the City of Haverhill Retirement System

#### EXHIBIT G

#### Funding Schedule

(1) Fiscal year ended June 30	(2) Employer normal cost	(3) Amortization of prior experience gains and losses	(4) Amortization of 2003 experience loss	(5) Amortization of 2002 ERI	(6) Amortization of 2003 ERI	(7) Amortization of remaining liability	(8) Total plan cost: (2)+(3)+(4)+ (5)+(6)+(7)	(9) Total UAL
2005	\$2,299,989	\$(763,012)	\$1,250,885	\$315,580	-	\$4,339,972	\$7,443,414	\$96,045,083
2006	2,403,489	(797,347)	1,307,175	329,782	\$246,211	4,884,531	8,373,841	98,851,353
2007	2,511,646	(833,229)	1,365,998	344,622	257,291	5,764,407	9,410,735	101,034,802
2008	2,624,670	(870,724)	1,427,468	360,130	268,868	6,023,805	9,834,217	102,436,438
2009	2,742,780	(909,906)	1,491,704	376,336	280,967	6,294,877	10,276,758	103,633,830
2010	2,866,205	(950,852)	1,558,831	393,271	293,610	6,578,146	10,739,211	104,595,063
2011	2,995,184	(993,640)	1,628,979	410,968	306,822	6,874,162	11,222,475	105,284,857
2012	3,129,967	(1,038,354)	1,702,283	429,461	320,629	7,183,499	11,727,485	105,664,248
2013	3,270,816	(1,085,080)	1,778,886	448,787	335,058	7,506,757	12,255,224	105,690,247
2014	3,418,003	(1,133,909)	1,858,935	468,982	350,136	7,844,560	12,806,707	105,315,459
2015	3,571,813	(1,184,934)	1,942,588	490,086	365,891	8,197,566	13,383,010	104,487,686
2016	3,732,545	(1,238,256)	2,030,004	512,140	382,357	8,566,456	13,985,246	103,149,469
2017	3,900,510	(1,293,977)	2,121,354	535,186	399,562	8,951,947	14,614,582	101,237,620
2018	4,076,033	(1,352,207)	2,216,814	559,270	417,543	9,354,784	15,272,237	98,682,683
2019	4,259,454	(1,413,056)	2,316,571	584,437	436,332	9,775,750	15,959,488	95,408,371
2020	4,451,129	(1,476,643)	2,420,816	610,736	455,967	10,215,658	16,677,663	91,330,938
2021	4,651,430	(1,543,092)	2,529,753	638,219	476,485	10,675,364	17,428,159	86,358,504
2022	4,860,744	(1,612,532)	2,643,592	666,939	497,927	11,155,754	18,212,424	80,390,310
2023	5,079,477	(1,685,096)	2,762,554	696,952	520,333	11,657,763	19,031,983	73,315,931
2024	5,308,053	(1,760,925)	2,886,869	728,314	543,748	12,182,362	19,888,421	65,014,388
2025	5,546,915	(1,840,166)	3,016,778	761,088	568,217	12,730,569	20,783,401	55,353,213
2026	5,796,526	(1,922,974)	3,152,533	795,337	593,787	13,303,444	21,718,653	44,187,404
2027	6,057,370	(2,009,508)	3,294,398	831,128	620,507	13,902,099	22,695,994	31,358,314
2028	6,329,952	(2,099,936)	3,442,646	868,528	648,430	14,527,693	23,717,313	16,692,425

Notes: Recommended contribution assumed to be paid monthly.  
Assumes (2) - (7) increase at 4.50% per year.  
Assumes contribution of budgeted amount for fiscal year 2005.

### SECTION 3: Supplemental Information for the City of Haverhill Retirement System

#### EXHIBIT H

#### Department Results

The results of the January 1, 2004 actuarial valuation projected to July 1, 2004 and July 1, 2005, are shown for the following departments.

Department	Housing Authority	Police & Fire	School	Waste Water	Water	Whittier	All others	Total
Actives	14	188	388	21	38	77	210	936
Inactives	1	12	96	2	6	35	312	464
Retirees	11	229	244	13	17	33	657	1,204
Projected payroll	\$517,551	\$10,920,765	\$8,753,118	\$1,025,512	\$1,743,146	\$2,194,114	\$7,589,498	\$32,743,704
2002 ERI payment	\$3,798	\$62,823	\$50,011	\$14,221	\$17,719	\$2,881	\$164,127	\$315,580
FY 2005 Funding Requirement, including 2002 ERI payment	65,824	2,894,201	1,206,790	139,987	158,385	216,564	2,761,663	7,443,414
2003 ERI payment	--	\$81,586	\$49,064	\$40,229	\$14,820	\$1,544	\$58,968	\$246,211
FY 2006 Funding Requirement, including ERI payments	\$78,878	3,238,079	1,354,528	198,622	198,181	248,148	3,057,405	8,373,841
FY 2007 Funding Requirement	\$88,268	\$3,611,207	\$1,499,923	\$221,754	\$221,653	\$274,647	\$3,493,283	\$9,410,735

In completing the separate valuations for the departments, assets were allocated in proportion to the total actuarial accrued liability for each department.

### SECTION 3: Supplemental Information for the City of Haverhill Retirement System

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#### EXHIBIT I

#### Definitions of Pension Terms

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The following list defines certain technical terms for the convenience of the reader:

**Assumptions or Actuarial**

**Assumptions:**

The estimates on which the cost of the Plan is calculated including:

- (a) Investment return — the rate of investment yield that the Plan will earn over the long-term future;
- (b) Mortality rates — the death rates of employees and pensioners; life expectancy is based on these rates;
- (c) Retirement rates — the rate or probability of retirement at a given age;
- (d) Turnover rates — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.

**Normal Cost:**

The amount of contributions required to fund the benefit allocated to the current year of service.

**Actuarial Accrued Liability**

**For Actives:**

The equivalent of the accumulated normal costs allocated to the years before the valuation date.

**Actuarial Accrued Liability**

**For Pensioners:**

The single sum value of lifetime benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.

**Unfunded Actuarial Accrued Liability:**

The extent to which the actuarial accrued liability of the Plan exceeds the assets of the Plan. There is a wide range of approaches to paying off the unfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.

### SECTION 3: Supplemental Information for the City of Haverhill Retirement System

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#### **Amortization of the Unfunded**

**Actuarial Accrued Liability:** Payments made over a period of years equal in value to the Plan's unfunded actuarial accrued liability.

#### **Investment Return:**

The rate of earnings of the Plan from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.

## SECTION 4: Reporting Information for the City of Haverhill Retirement System

### EXHIBIT I

#### Summary of Actuarial Valuation Results

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 105 beneficiaries in pay status)	1,204
2. Participants active during the year ended December 31, 2003 (including 4 participants with unknown age) with total accumulated contributions of \$23,573,078 and projected payroll of \$32,030,938	936
3. Inactive employees with vested rights to a return of their contributions or a deferred or immediate benefit as of December 31, 2003	464

The actuarial factors as of the valuation date are as follows:

1. Normal cost, including administrative expenses	\$4,891,257
2. Extended employee contributions	<u>-2,731,262</u>
3. Employer normal cost: (1) + (2)	\$2,159,995
4. Actuarial accrued liability	242,187,917
Retired participants and beneficiaries	\$174,090,739
Inactive participants	5,098,063
Active participants	62,999,115
5. Actuarial value of assets (\$143,915,478 at market value)	149,981,686
6. Unfunded actuarial accrued liability	92,206,231

The determination of the recommended contribution is as follows:

1. Projected employer normal cost, adjusted for timing	\$2,299,989
2. Projected unfunded actuarial accrual liability	96,045,083
3. Payment on projected unfunded actuarial accrued liability, adjusted for timing	6,216,920
4. Total preliminary recommended contribution: (1) + (3)	\$8,516,909
5. Budgeted appropriation	<u>\$7,443,414</u>
6. Projected payroll	32,743,704

*Note: Recommended contributions are assumed to be paid monthly.*

**SECTION 4: Reporting Information for the City of Haverhill Retirement System**

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**EXHIBIT II**

**Supplementary Information Required by the GASB – Schedule of Employer Contributions**

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<b>Plan Year Ended December 31</b>	<b>Annual Required Contributions</b>	<b>Actual Contributions</b>	<b>Percentage Contributed</b>
1994	\$6,035,771	\$6,035,771	100.0%
1995	5,857,383	5,857,383	100.0%
1996	5,302,115	5,302,115	100.0%
1997	5,617,639	5,617,639	100.0%
1998	6,182,250	6,182,250	100.0%
1999	6,506,128	6,506,128	100.0%
2000	3,497,185	3,497,185	100.0%
2001	5,695,614	5,695,614	100.0%
2002	6,197,453	6,197,453	100.0%
2003	6,584,640	6,584,640	100.0%

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**SECTION 4: Reporting Information for the City of Haverhill Retirement System****EXHIBIT III****Supplementary Information Required by the GASB – Schedule of Funding Progress**

<b>Actuarial Valuation Date</b>	<b>Actuarial Value of Assets (a)</b>	<b>Actuarial Accrued Liability (AAL) (b)</b>	<b>Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)</b>	<b>Funded Ratio (a) / (b)</b>	<b>Covered Payroll (c)</b>	<b>UAAL as a Percentage of Covered Payroll* [(b) - (a) / (c)]</b>
01/01/1992	\$48,876,900	\$113,034,400	\$64,157,500	43.24%	\$36,244,700	177.01%
01/01/1994	62,881,000	120,763,100	57,882,100	52.07%	38,721,700	149.48%
01/01/1996	78,719,700	135,089,000	56,369,300	58.27%	41,771,600	134.95%
01/01/1998	103,152,900	170,794,900	67,642,000	60.40%	46,744,300	144.71%
01/01/1999	111,228,800	181,575,900	70,347,100	61.26%	48,847,800	144.01%
01/01/2000	144,484,800	195,312,800	50,828,000	73.98%	53,469,200	95.10%
01/01/2001	156,688,800	210,219,900	53,531,100	74.54%	55,875,300	95.80%
01/01/2002	160,890,365	222,348,347	61,457,982	72.36%	37,384,107	164.40%
01/01/2003	148,677,744	233,743,425	85,065,681	63.61%	39,066,392	217.75%
01/01/2004	149,981,686	242,187,917	92,206,231	61.93%	32,030,938	287.87%

#### SECTION 4: Reporting Information for the City of Haverhill Retirement System

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##### EXHIBIT IV

##### Supplementary Information Required by the GASB

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<b>Valuation date</b>	January 1, 2004
<b>Actuarial cost method</b>	Entry Age Normal Cost Method
<b>Amortization method</b>	Increasing at 4.50% per year.
<b>Remaining amortization period</b>	24 years remaining as of July 1, 2004, except 23 years remaining as of July 1, 2005 on the 2003 ERI.
<b>Asset valuation method</b>	5-year smoothing of investment returns greater (less) than expected.
<b>Actuarial assumptions:</b>	
Investment rate of return	8.50%
Projected salary increases	5.50%
Cost of living adjustments	3.0% of the first \$12,000 of retirement income.
<b>Plan membership:</b>	
Retired participants and beneficiaries receiving benefits	1,204
Terminated participants entitled to, but not yet receiving benefits	464
Active participants	<u>936</u>
Total	2,604

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## SECTION 4: Reporting Information for the City of Haverhill Retirement System

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### EXHIBIT V

#### Actuarial Assumptions and Actuarial Cost Method

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##### Mortality Rates:

*Healthy:* 1983 Group Annuity Mortality table

*Disabled:* PGBC Mortality Table for Disabled Lives Receiving Social Security Benefits

##### Termination Rates before Retirement:

Age	Groups 1 and 2 - Rate (%)			
	Mortality		Disability	Withdrawal
	Male	Female		
20	0.04	0.02	0.06	7.94
25	0.05	0.03	0.09	7.72
30	0.06	0.03	0.11	7.22
35	0.09	0.05	0.15	6.28
40	0.12	0.07	0.22	5.15
45	0.22	0.10	0.36	3.98
50	0.39	0.16	0.61	2.56
55	0.61	0.25	--	--
60	0.92	0.42	--	--

*Notes:* 25% of the disability rates shown represent accidental disability.  
20% of the accidental disabilities will die from the same cause as the disability.  
20% of the death rates shown represent accidental death

## SECTION 4: Reporting Information for the City of Haverhill Retirement System

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Age	Group 4 - Rate (%)			
	Mortality		Disability	Withdrawal
	Male	Female		
20	0.04	0.02	0.18	--
25	0.05	0.03	0.27	--
30	0.06	0.03	0.33	--
35	0.09	0.05	0.45	--
40	0.12	0.07	0.44	--
45	0.22	0.10	1.08	--
50	0.39	0.16	1.83	--
55	0.61	0.25	--	--
60	0.92	0.42	--	--

*Notes: 100% of the disability rates shown represent accidental disability.  
60% of the accidental disabilities will die from the same cause as the disability.  
100% of the death rates shown represent accidental death*

Retirement Rates:	Rate per year (%)	
	Age	Group 4
	50 - 59	10.0
	60 - 61	10.0
	62	50.0
	63 - 64	50.0
	65	100.0

**Unknown Data for Participants:** Same as those exhibited by participants with similar known characteristics.  
**Age of Spouse:** Female (or male) spouses 3 years younger (or older) than their spouses  
**Percent Married:** 75%

#### SECTION 4: Reporting Information for the City of Haverhill Retirement System

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**Net Investment Return:** 8.50%

**Interest on Employer Contributions:** 3.50%

**Salary Increases:**

Age	Present salary as a percent of salary at 65	Annual increase rate (%)
20	8.99	5.50
25	11.75	5.50
30	15.35	5.50
35	20.06	5.50
40	26.22	5.50
45	34.27	5.50
50	44.79	5.50
55	58.54	5.50
60	76.51	5.50

*Includes allowance for inflation of 4.5%*

**Administrative Expenses:** \$400,000 for calendar year 2004 (previously \$450,000).

**Cost of Living Increases:** 3.00% on first \$12,000 of retirement allowance.

**Actuarial Value of Assets:** A preliminary actuarial value is first determined by taking the actuarial value of assets at the beginning of the year and adding assumed investment earnings (at the assumed actuarial rate of return) and the net new money during the year (contributions less benefit payments and administrative expenses). Twenty percent of the difference between the market value of assets and the preliminary actuarial value of assets is added to the preliminary actuarial value. In order that the actuarial value not differ too significantly from the market value of assets, the final actuarial value of assets must be within 20% of the market value of assets.

**Actuarial Cost Method:** Entry Age Normal Actuarial Cost Method. Entry Age is the age of the participant at Date of Hire. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by salary.

**SECTION 4: Reporting Information for the City of Haverhill Retirement System**

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**EXHIBIT VI**

**Summary of Plan Provisions**

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This exhibit summarizes the major provisions of Chapter 32 of the Laws of Massachusetts.

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**Plan Year:** January 1 through December 31

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**Retirement Benefits**

Employees covered by the Contributory Retirement Law are classified into one of four groups depending on job classification. Group 1 comprises most positions in state and local government. It is the general category of public employees. Group 4 comprises mainly police and firefighters. Group 2 is for other specified hazardous occupations. (Officers and inspectors of the State Police are classified as Group 3.)

The annual amount of the retirement allowance is based on the member's final three-year average salary multiplied by the number of years and full months of creditable service at the time of retirement and multiplied by a percentage according to the following table based on the age of the member at retirement:

Age Last Birthday at Date of Retirement			
Percent	Group 1	Group 2	Group 4
2.5	65 or over	60 or over	55 or over
2.4	64	59	54
2.3	63	58	53
2.2	62	57	52
2.1	61	56	51
2.0	60	55	50
1.9	59	--	49
1.8	58	--	48
1.7	57	--	47
1.6	56	--	46
1.5	55	--	45

## **SECTION 4: Reporting Information for the City of Haverhill Retirement System**

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A member's final three-year average salary is defined as the greater of the highest consecutive three-year average annual rate of regular compensation and the average annual rate of regular compensation received during the last three years of creditable service prior to retirement. The \$30,000 cap on salary used in a benefit determination for any employee hired after January 1, 1979 has been removed.

The maximum annual amount of the retirement allowance is 80 percent of the member's final three-year average salary. Any member who is a veteran also receives an additional yearly retirement allowance of fifteen dollars per year of creditable service, not exceeding three hundred dollars. The veteran allowance is paid in addition to the 80 percent maximum.

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### **Employee Contributions**

Employees hired before January 1, 1975 contribute 5 percent of their salary; employees hired after December 31, 1974 and before January 1, 1984 contribute 7 percent; employees hired after January 1, 1984 contribute 8 percent; employees hired after July 1, 1996 contribute 9 percent. In addition, employees hired after December 31, 1978 contribute an additional 2 percent of salary in excess of \$30,000.

Employees hired after 1983 who leave with less than five years of credited service receive no interest on their contributions and employees who leave with five but less than ten years receive one-half the rate of regular interest otherwise payable.

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### **Retirement Benefits (Superannuation)**

Members of Group 1, 2 or 4 may retire upon the attainment of age 55. For retirement at ages below 55, twenty years of creditable service is required.

Members who terminate before age 55 with ten or more years of creditable service are eligible for a retirement allowance upon the attainment of age 55 (provided they have not withdrawn their accumulated deductions from the Annuity Savings Fund of the system).

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### **Ordinary Disability Benefits**

A member who is unable to perform his job due to a non-occupational disability will receive a retirement allowance if he has ten or more years of creditable service and has not reached age 55. The annual amount of such allowance shall be determined as if the member retired for superannuation at age 55, based on the amount of creditable

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service at the date of disability. For veterans, there is a minimum benefit of 50 percent of the member's most recent year's pay plus an annuity based on his own contributions.

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### Accidental Disability Benefit

For a job-connected disability the benefit is 72 percent of the member's most recent annual pay plus an annuity based on his own contributions, plus additional amounts for surviving children. Benefits are capped at 75 percent of annual rate of regular compensation for employees who become members after January 1, 1988.

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### Death Benefits

In general, the beneficiary of an employee who dies in active service will receive a refund of the employee's own contributions. Alternatively, if the employee were eligible to retire on the date of his death, a spouse's benefit will be paid equal to the amount the employee would have received under Option C (previously, two-thirds of the amount). The surviving spouse of a member who dies with two or more years of credited service has the option of a refund of the employee's contributions or a monthly benefit regardless of eligibility to retire, if they were married for at least one year. There is also a minimum widow's pension of \$500 per month, and there are additional amounts for surviving children.

If an employee's death is job-connected, the spouse will receive 72 percent of the member's most recent annual pay in addition to a refund of the member's accumulated deductions, plus additional amounts for surviving children. However, in accordance with Section 100 of Chapter 32, the surviving spouse of a police officer, firefighter or corrections officer is killed in the line of duty will be eligible to receive an annual benefit equal to the maximum salary held by the member at the time of death.

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### "Heart And Lung Law" And Cancer Presumption

Any case of hypertension or heart disease resulting in total or partial disability or death to a uniformed fireman or permanent member of a police department is presumed to have been suffered in the line of duty, unless the contrary is shown by competent evidence. Any case of disease of the lungs or respiratory tract resulting in total disability or death to a uniformed fireman is presumed to have been suffered in



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the line of duty, unless the contrary is shown by competent evidence. There is an additional presumption for uniformed firemen that certain types of cancer are job-related if onset occurs while actively employed or within five years of retirement.

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### **Options**

Members may elect to receive a full retirement allowance payable for life under Option A. Under Option B a member may elect to receive a lower monthly allowance in exchange for a guarantee that at his death any of his contributions not expended for annuity payments will be refunded to his beneficiary. Option C allows the member to take a lesser retirement allowance in exchange for providing his survivor with two-thirds of the lesser amount. Option C pensioners who retire in 1988 or later will have their benefits converted from a reduced to a full retirement if the beneficiary predeceases the retiree.

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### **Post-Retirement Benefits**

The Board has adopted the provisions of Section 51 Chapter 127 of the Acts of 1999, which provide that the Retirement Board may approve an annual COLA in excess of the Consumer Price Index but not to exceed a 3% COLA on the first \$12,000 of a retirement allowance. Cost-of-living increases granted prior to July 1, 1998 are reimbursed by the Commonwealth and not reflected in this report.